THE VETERINARY RECORD

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888

No. 9. FEBRUARY 27th, 1954 VOL. 66.

ACID INDIGESTION IN A SHEEP FED ON MANGOLDS

BY

R. SCARISBRICK

DEPARTMENT OF ANIMAL PATHOLOGY,
UNIVERSITY OF CAMBRIDGE

Some time ago, while feeding mangolds to a group of sheep, the writer encountered a case of illness in one of the sheep caused by overeating. Since a similar condition has been recognised in sheep fed on other diets it was thought to be of some interest to record the case.

The rumen of the sheep is usually maintained at a *p*H close to neutrality. Evidence is now accumulating that a low *p*H in the rumen is associated with ruminal atony and symptoms of "indigestion," and that this low *p*H may be the result of accumulation of lactic acid within the rumen. Woodman & Evans (1938) showed that rumen micro-organisms break down glucose with the production, at first, of lactic and pyruvic acids. Phillipson & McAnally (1942) showed that lactic acid was produced from glucose, fructose or sucrose introduced into the rumen but not from maltose, lactose or galactose. Phillipson (1942) found that lactic acid was produced in the rumen when mangolds and cabbage were fed. Turner & Rodwell (Rodwell, 1949, and various private communications) found that the lactic acid fermentation which followed ingestion of a large amount of grain, as in wheat poisoning, produced a low *p*H in the rumen and investigated the suggestion, adumbrated by Alkerblom (1934) and Dougherty (1942), that at low *p*H bacterial decarboxylation of histidine produced histamine which was toxic to the animal. Interest in this problem has continued in Australia (C.S.I.R. Reports, 1949–52). Hungate, Dougherty, Bryant & Cello (1952) have recently demonstrated that acid conditions arise in the rumen (*p*H 4·1 to 4·7) if large quantities of glucose or grain are fed, that alterations of the normal flora then appear and that the animal may die. They found, however, that when animals had been accustomed to the grain diet the same amount of grain as was formerly toxic produced no sign of ill health and focused attention on the importance of sudden changes of diet. Phillipson (1952) noticed that when sheep were fed flaked maize the *p*H in the rumen gradually fell, in one case reaching a value of 4·3, but mentions no unusual symptoms.

The writer's experience when feeding mangolds to sheep, to which a brief reference has already been made (Reid, 1950), was essentially similar to the results obtained elsewhere with grain and glucose. One case, however, was of particular interest. A Suffolk wether of about 150 lb. bodyweight had been kept on a diet of 12 lb. of mangolds daily for a fortnight. One day the ration was increased inadvertently to 16 lb. The sheep, usually a voracious feeder, stopped after eating 15 lb., this unusual circumstance leading to the discovery of the error. When seen next morning the animal was lying down. It did not rise until strongly urged and then simply stood with a dejected appearance, occasionally grinding its teeth, and showed no interest in mangolds. The sheep had been equipped with a rumen cannula which usually afforded evidence, by its movement, of ruminal contractions. but of these there was no sign. When turned out it walked painfully and proved to be lame in all four feet, which were hot to the touch and were rested at intervals. (This association of lameness with indigestion was also observed by Hungate *et al.* and the Australian workers.) In the evening the sheep was still lying, but was aroused more easily and ate with avidity small amounts of chaffed hay, searching eagerly for this amongst the sawdust on which it was bedded. On the second morning it was still lame, but seemed somewhat improved in general condition and had eaten a small amount of mangold. The improvement continued through the third day, and on the fourth day all that remained was a craving for chaffed hay : the walls of the pen had been licked clean to secure this. During the whole period no water was drunk. It was impossible subsequently to persuade this sheep to eat more than 8 lb. of mangold in a day.

This case is interesting because it was possible to obtain samples from the rumen during the upset, and to correlate changes there with the development and disappearance of symptoms. Fig. 1 shows changes in the rumen occurring in this sheep, when fully recovered, following a feed of 8 lb. mangolds : they are typical of the normal behaviour.

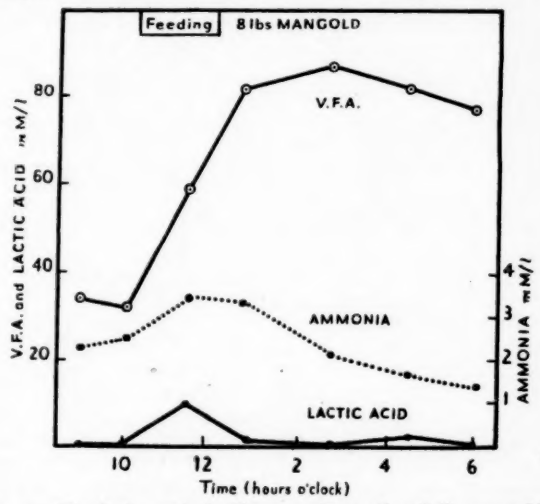

FIG. 1.—Ruminal events in Sheep 1 after eating 8 lb. mangolds.

The concentration of lactic acid in the rumen liquor rose after feeding from almost zero, its normal value, to a peak of 11 mM./per litre after three hours and then fell away again. Volatile fatty acid (V.F.A.) production increased as usual after feeding from 30 to 85 mM./per litre. The normal neutralising mechanisms of the rumen were able to cope with this production of acid and the *p*H did not fall below 6·2. The level of ammonia in the rumen, reflecting the difference between production from nitrogenous sources and uptake by micro-organisms for growth, rose slightly at first and then gradually fell away as the balance swung in favour of uptake by micro-organisms (McDonald, 1948).

On the morning on which the larger amount of mangolds was fed events began as anticipated (Fig. 2) with an increase in ruminal V.F.A. and ammonia, but whereas the ammonia continued to rise to an unusual height the V.F.A., after

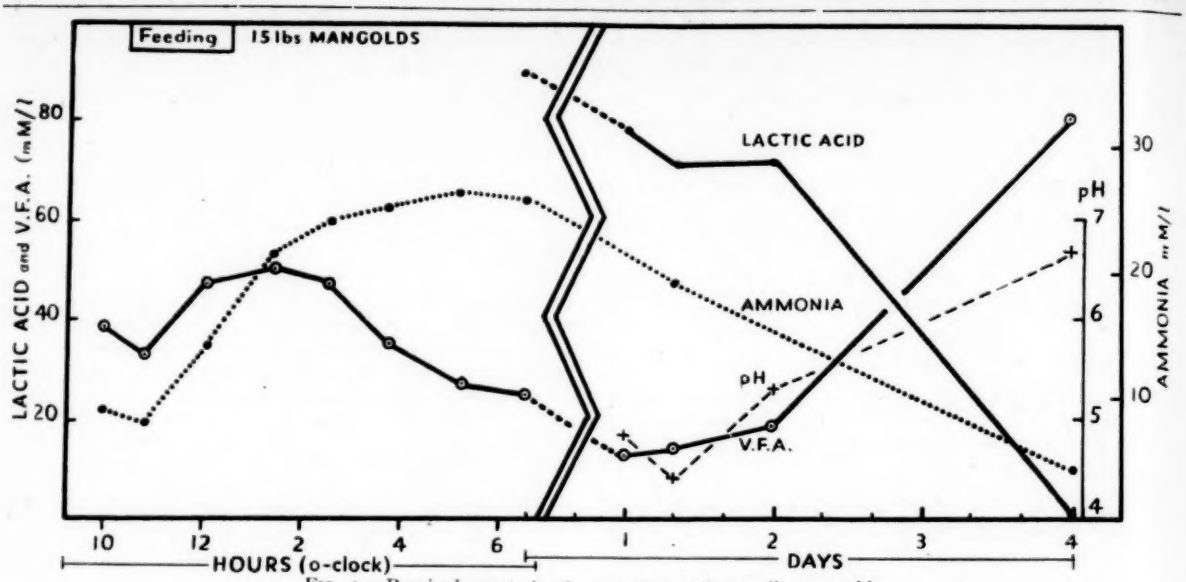

FIG. 2.—Ruminal events in Sheep 1 after eating 15 lb. mangolds.

attaining a maximum value very much lower than usual, fell away. As soon as these results were obtained the possibility of lactic acid production was considered, and it was possible to perform an estimation on the last sample of the day, which showed the very high value of 90 mM./per litre lactic acid. Next morning the lactic acid was still extremely high, the V.F.A. had sunk to an unprecedentedly low level, and the *p*H was 4·7. This state continued throughout the day and the contents of the rumen remained stagnant. The normal mechanisms of absorption of acid, neutralisation by saliva and mechanical washing by saliva and ingested water, which usually preserve a healthy neutrality of the rumen, seemed to be in abeyance. By the next day the *p*H and V.F.A. measurements indicated that the position had begun to be relieved, and two days later lactic acid had virtually disappeared, ammonia had fallen and *p*H and V.F.A. had risen to healthy levels.

Although several attempts have been made by feeding mangolds to different sheep in different ways, it has not been possible to repeat this result, and indeed the feeding of mangolds to sheep is common and usually unattended by any ill effect. It may be that this sheep was affected because it was a particularly voracious feeder, so that a large amount of sucrose was suddenly made available to the rumen micro-organisms. The possibility remains that similar conditions may occur in the field.

In order to discriminate between the effect of acidity itself, and the possibility of the occurrence in, or production from, the mangolds of some toxic material such as nitrite (McIntosh), or histamine (the latter hypothesis attractive because of the associated laminitis), dilute mineral acid (hydrochloric or sulphuric) was added to the rumen of 10 sheep. If the *p*H remained above 5·0 no symptoms resulted. If the *p*H fell between 4·5 and 5·0 symptoms of ruminal stagnation sometimes developed, and if a *p*H between 4·0 and 4·5 was attained, symptoms usually developed. The animals in which symptoms developed were dejected and had no interest in food, and remained so for from two days to a week. No further lameness has been noticed. A similar condition lasting for 40 hours arose when 500 g. glucose were added to the rumen. These experiments (similar to those of Hungate *et al.*) support the belief that acidity of the rumen causes an inhibition of normal rumen digestive processes from which there may be a slow recovery unless some additional process supervenes.

Since a marked fall in the *p*H of the rumen produces a baneful effect which is not readily reversed, it is relevant to list some of the mechanisms operating to preserve the neutrality of the rumen against the effect of acid production.

1. Elimination of acid from rumen.
   (*a*) Due to onward passage of material.
   (*b*) Due to removal of V.F.A. and perhaps other acids by absorption and/or metabolism by the rumen wall.
   (*c*) Due to removal of CO_2 by eructation and possibly by absorption.
   (*d*) Due to metabolic conversion brought about by ruminal organisms, *e.g.*, $CO_2 \rightarrow CH_4$.
2. Addition of alkali to rumen.
   (*a*) By the flow of saliva into the rumen.
   (*b*) By the addition of certain foodstuffs, *i.e.*, those already neutral or alkaline or those which produce alkali as a result of microbial metabolic conversions.
3. Buffering of acid within the rumen.
   (*a*) By the contents of the rumen, *e.g.*, bicarbonate, proteins, phosphate, etc.
   (*b*) By the acid itself if its dissociation constant is suitable, *e.g.*, the volatile fatty acids buffer themselves maximally at *p*H 4·7 whereas the stronger lactic acid buffers itself at *p*H 3·9.

The rapid production in the rumen of an amount of acid of the order of 1 gramme equivalent may overwhelm the neutralising capacity immediately available : the resulting acidity interferes with those neutralising mechanisms which act more slowly. The slower production of considerably more acid can be tolerated without difficulty ; also it seems that the ability to deal with the production of large amounts of acid without the development of clinical symptoms is increased by previous experience.

More information about the origin and occurrence of this and related conditions in ruminants is needed in order to be able to assess their importance.

References

ALKERBLOM, E. (1934). *Skand. Arch. Physiol.* **68.** Suppl., p. 168.
Commonwealth Scientific & Industrial Research Organisation. Annual Reports I–IV. (1949–52). Melbourne, Australia.
DOUGHERTY, R. W. (1942). *Cornell Vet.* **32.** 269.
HUNGATE, H. E., DOUGHERTY, R. W., BRYANT, M. P., & CELLO, R. M. (1952). *Ibid.* **6.** 190.
MCDONALD, I. W. (1948). *Biochem. J.* **42.** 584.
MCINTOSH, I. G. " Thistle and Mangold Poisoning." N.Z. Dept. of Agriculture.
PHILLIPSON, A. T. (1942). *J. exp. Biol.* **19.** 186.
———. (1952). *Brit. J. Nutrit.* **6.** 190.
——— & MCANALLY, R. A. (1942). *J. exp. Biol.* **19.** 199.
REID, R. L. (1950). *Aust. J. Agric. Res.* **1.** 338.
RODWELL, A. W. (1949). Thesis for Ph.D. degree. University of Cambridge.
WOODMAN, H. E., & EVANS, R. E. (1938). *J. Agric. Sci.* **28.** 43.

A FATAL HYPOCALCAEMIA-LIKE SYNDROME IN DAIRY COWS FOLLOWING THE EXCESS CONSUMPTION OF FODDER-BEET

BY

ALASTAIR N. WORDEN AND J. BUNYAN

CROMWELL HOUSE, HUNTINGDON

AND

J. PICKUP

BARNET

As Castle (1953b) has indicated, fodder-beet has many properties to recommend it as a cattle food and is extremely palatable to cattle of all ages. It is in common use in Denmark for the feeding of dairy cows, a dry-matter content of 17 to 18 per cent. being regarded as most suitable for this purpose, and Young (1952) has provided examples of typical Danish rations containing it. Trials with wethers have given a calculated digestibility of the organic matter of 93·6 per cent. (Boyle, 1952), and in cattle-feeding studies conducted by the National Institute for Research in Dairying the ratio of the feeding value of the dry matter of fodder-beet to that of mangolds has been found to be 1·062 : 1 (Bailey, Castle & Foot, 1953). Substitution of fodder-beet for mangolds or other roots should therefore be made on the basis of the relative dry-matter contents. In the Shinfield studies up to 98 lb. daily of fodder-beet was fed to individual cows without harm, and the eager consumption of up to 80 lb. daily was noted. Such amounts are, of course, difficult to balance, and Castle (1953b) suggests that a more normal ration would contain 25 to 30 lb. of fodder-beet, which could with advantage replace mangolds.

It is emphasised by Danish agriculturists that the greatest care should be taken in feeding fodder-beet of the highest dry-matter content, *i.e.*, 22 to 24 per cent. (Castle, 1953.a) The higher the dry matter the greater the risk of digestive upsets and hypocalcaemia. Emphasis is placed upon the need for feeding the fodder-beet in a clean condition, free from soil. It is regarded as most important that there should be no sudden change in a feeding routine involving fodder-beet, and even when one variety of roots is being replaced by another a transition period of up to 14 days is recommended. Whenever possible, beet-top silage is fed together with the whole fodder-beet, for although there is not any experimental evidence upon the point it is the general view that the feeding of root and tops helps to reduce the incidence of any trouble. There is no knowledge of the actual mechanism whereby digestive disturbance and hypocalcaemia may occur, but it is not believed to be due to oxalate or nitrite poisoning. The hypocalcaemia, when it occurs, is treated with calcium borogluconate.

So far as we are aware, there has not been any previous report in this country of serious adverse effects from the feeding of fodder-beet to cattle, and the present outbreak is therefore put on record to indicate the dangers that may result from errors in feeding-practice and, in particular, from the sudden replacement on a fresh-weight basis of another root food by fodder-beet.

The outbreak occurred on a farm in South Hertfordshire at which it was the practice to balance the lush spring grass by feeding mangolds at pasture. By the end of April the mangolds were running out and a consignment of fodder-beet was ordered to replace them. The farm in question formed one of three separate holdings under the same management, on the other two of which the herdsmen were advised to effect the introduction of fodder-beet gradually. No such instruction was deemed to be necessary in the case of the experienced herdsman at this farm, and after the morning milking on Sunday, May 3rd, 1953, fodder-beet was spread liberally on the field to be grazed by a milking herd of 50 Guernsey cows. Nothing untoward was noted at the evening milking that day, but the man who went to fetch the animals on the following morning found the whole herd lying about the field with the appearance of what he described as milk fever. When examined shortly afterwards by one of us (J. P.), typical symptoms of hypocalcaemia were still marked, and these persisted for several hours.

The most severely affected animals were treated with calcium borogluconate, but despite this there were six deaths. *Post-mortem* examination showed that in each case the rumen was heavily impacted and that there was actual separation of its mucosa with associated haemorrhage. There were no other macroscopic findings of significance.

Of the remaining 44 cows, all that were in milk ceased to yield completely, and it was not until the third day that there was any return of the flow. Specimens of urine from several surviving animals appeared to be normal in all respects and free from oxalate. Blood samples taken from two cows during the recovery phase were examined by the method of Holtz (1951), and were found to contain 7·6 and 8·9 mg. Ca and 1·18 and 1·58 mg. Mg per 100 ml. respectively. The respective R.B.C. counts were 7·15 and 6·40 millions per cu. mm.

Toxicological Examination

From the weighed amount of fodder-beet picked up from the field it was calculated that the *average* individual consumption in the 22 hours prior to discovery of the affected animals had been just over 40 lb. Toxicological examinations of portions of the beet picked up from the field, including the tops, were negative.

A period of some weeks elapsed before whole fodder-beets from the same consignment could be examined. These again gave negative results when examined toxicologically. The analysis at this stage showed that the dry-matter content had risen to 40 per cent., and clearly dehydration had occurred on storage. Even so, it is likely that the fodder-beet as fed had a very high dry-matter content. The percentage analysis otherwise, on a dry-matter basis, was within normal limits, *viz.*, crude protein, 8·78 ; ether-extract, 0·4 ; fibre, 3·52 ; and ash, 8·85. The variety of fodder-beet could not be traced.

Hypocalcaemia and/or hypomagnesaemia may, of course, be precipitated from "overeating" on other foods. In the report of the Department of Animal Health, University College of Wales, Aberystwyth (1947, p. 204), mention was made of cases submitted by Mr. W. M. Jones, M.R.C.V.S., in which overeating on cereals had been the precipitating factor. Hoflund & Hedström (1949) state that death following acute hypocalcaemia may result in cattle that have suffered too rapid a change from a cellulose-rich to a protein-rich ration. The hypocalcaemia is attributed to alkalosis, with consequent depression of the ionisation of Ca and Mg in the blood, arising from the ruminal production of ammonia or other toxic N-containing alkaline substances.

In conclusion it is worth repeating that fodder-beet has been employed most successfully for some years in Denmark and for shorter periods in Great Britain, and is to be regarded as a useful food for cattle. It is important, however, particularly when fodder-beet is being introduced, to ensure that it is fed correctly. It is not dangerous if employed properly but, as the present communication indicates, it may have dangers if the husbandry is at fault.

(*Continued at foot of col. 1, page 134*)

CLINICAL COMMUNICATION

SUSPECTED POISONING BY FODDER-BEET IN THE BOVINE

BY

RICHARD H. C. PENNY

Leighton Buzzard

For years it has been recognised that the fresh tops of many of the root crops grown for animal feeding were poisonous when fed to cattle in excess. It has been the practice to allow the tops to " wilt " (*i.e.*, to cut the tops two to three days before feeding) in order to reduce this danger. The toxic principle is oxalic acid and this is present in high concentration in the tops of such roots as mangolds, swedes and fodder-beet.

In November, 1953, the writer was called to examine a pedigree attested Guernsey cow that was found down at the evening milking. She had consumed the previous day a quantity of fodder-beet (exact amount unknown) from a clamp in the field, which she had reached by forcing through a wire fence. Up to the time of this accident three to four fodder-beet were being fed at night to each animal.

This cow calved down for the second time in February, 1953, and was due to calve again in March, 1954. Her condition was good, appetite since her accidental consumption of the fodder-beet nil, and her general appearance dull. Her head was extended, she showed no tympany, her ruminal movements were in abeyance, and she was unable to gain her legs on stimulation. Her pupils were dilated, she ground her teeth continually, her temperature was 102° F. and her pulse 60 beats per minute. She showed little reflex response to stimuli applied to her hind legs and quarters, and did not resent this until her ribs were reached. She showed muscle twitching of the neck and forequarters. Faeces during the day had been very scanty.

Diagnosis was tentative, and poisoning by excess of fodder-beet was suspected. Treatment, in case it was an atypical mineral deficiency, was May and Baker M.F.C. intravenously. A blood sample was taken at the time of injection.

The following morning the animal was on her feet, but she was still very dull. Only hay and water had been offered but both had been refused. She still ground her teeth, had passed very little faeces, had no milk (she was drying off), and was excessively sleepy. Her temperature was 103° F. and pulse 60 beats per minute. A further blood sample was taken and dispatched to Weybridge.

Another M.F.C. injection was given, this time subcutaneously, and 1 lb. of salts was given by mouth in a quart of water. A milk sample proved negative for acetone. The following morning the animal had not improved. There had been no evacuation of the bowels, her temperature was rising and her pulse also ; 103·4° F. and 75 beats per minute respectively. The animal still ground her teeth and was obviously in abdominal pain of a spasmodic nature. There was still no evidence of the recommencement of ruminal function.

Her condition had progressively worsened by the third day. Temperature 104·6° F. and pulse 90 beats per minute. Prognosis was grave, and in an attempt to reduce the suspected absorption of poison a rumenotomy was performed, and about three bucketfuls of ruminal contents were removed. The lining of the rumen was inflamed, and numerous pieces of fodder-beet could be seen within. The contents were very watery, had a disagreeable odour, and a marked absence of fibre was noticed. The animal died early the following morning.

Post-mortem was carried out on the day of death. A diffuse patchy inflammation of the lining of the rumen, reticulum, abomasum and intestines was found. There was a marked absence of faecal material in the small intestine. The liver and kidneys were pale and blotchy in appearance, and the heart showed extensive haemorrhages along the course of the coronary vessels. Samples were collected for toxicological analysis.

The reports from Weybridge on the blood samples were as follows :—

		1st sample	2nd sample
Calcium	mg. p.c. serum	10·2	8·8
Magnesium	" " "	2·3	2·2
Acetone		Normal	Normal
Inorganic P.	" blood	6·9	3·0

These showed a slight decline in the calcium level and also a reduction in inorganic phosphorus during the course of the illness. Unfortunately, a satisfactory report on the organs sent for analysis was not obtained, owing to a long delay in their examination.

Advice on the case was sought from various quarters. Weybridge reported that they had received several blood samples from similar cases within the last 18 months, and a letter stating that several cases had been reported was sent from Streatley.

Discussion

This case is thought worthy of recording owing to the scanty literature on the subject of poisoning by root crops. It would seem reasonable to assume that if the tops concentrated a toxic principle it might be present in the root in a lesser proportion.

Undoubtedly the shock of rumenotomy in this case hastened death, but the animal's condition was grave before it was undertaken, and at *post-mortem* preliminary healing was progressing normally. Possibly the course of this case might have been altered if rumenotomy had been performed earlier, but the indications for carrying out this operation, such as severe ruminal distension with food and gas, were absent.

The *post-mortem* findings revealed that death could be attributed to a toxaemia brought about by the absorption of some irritant principle ; and the history, and symptoms during life, indicate that this was the case. It might well be that the absence of fibre in the rumen when the roots were consumed was a contributing factor to the ruminal atony.

References

Bailey, G. L., Castle, M. E., & Foot, A. S. (1953). *Emp. J. exp. Agric.* **21.** 42.

Boyle, P. J. (1952). Mimeographed Publication No. 1, Commonwealth Bureau of Pastures and Forage Crops, Aberystwyth.

Castle, M. E. (1953a). Personal communication from the University of Liverpool Veterinary Field Station.

———. (1953b). *Agriculture. J. Minist. Agric.* **60.** 406.

Department of Animal Health, U.C.W., Aberystwyth. (1947). Report from 1945–47, p. 228.

Hoflund, S., & Hedström, H. (1949). *Acta Agriculturae Suecana.* **3.** 121.

Holtz, A. H. (1951). *Chem. Weekblad.* **47.** 907.

Young, K. E. (1952). *Agriculture. J. Minist. Agric.* **58.** 521.

POULTRY ESSAY PRIZE

The United Kingdom Branch of the World's Poultry Science Association is to offer 10 guineas' worth of books each year for the best essay on Poultry Husbandry. Those eligible to compete include students reading for a post-graduate diploma in poultry husbandry. This year's subject is The Advantages and Disadvantages of the Intensive and Range Systems of Poultry-keeping.

Essays should be 3,000 words in length, and copies will be required in triplicate. Particulars may be obtained from Major Ian Macdougall, 45, Bedford Square, London, W.C.1.

QUESTIONS AND ANSWERS

The submission of questions for inclusion in this column is welcomed; they can relate to any aspect of veterinary work, but must be of a general nature—questions cannot be considered in which information is sought regarding diagnosis or treatment of specific cases, nor for which solely a private reply is desired. For purposes of record, each question is numbered, and those submitting questions are required to furnish (not for publication) name and address.

Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.

All communications should be addressed to the Editor.

Organisms Normally Present in the Bovine Vagina

Q. 444.—*What organisms would one expect to find normally in the bovine vagina? Are* C. pyogenes *and coliforms normally present in small numbers?*

A.—A variety of organisms have been found in the vagina of apparently normal cows. Many workers have recovered non-haemolytic and haemolytic streptococci, and staphylococci and coliforms. Among the streptococci recovered and classified *Str. acidominimus* is most frequently found (Smith & Sherman, 1939; Francis, 1941) but *Str. dysgalactiae* and *Str. uberis* was recovered (Francis, 1941). Diphtheroids of many kinds, including *C. renale* and *C. pyogenes* have also been recovered (Lovell, 1943; Francis, 1941; Weitz, 1947). The presence of *C. pyogenes* is usually associated with past or present infection of the uterus while *C. renale* appears to be an inhabitant of the posterior vagina and the urinary meatus (Weitz, 1947). The significance of the isolation of any particular organism can only be assessed in the light of environmental conditions, the history of the animal, and any clinical findings.

References

Francis, J. (1941). *Vet. J.* **97.** 243.
Lovell, R. (1943). *Vet. Rec.* **55.** 99.
Smith, F. R., & Sherman, S. M. (1939). *J. infect. Dis.* **65.** 301.
Weitz, B. (1947). *J. com. Path.* **57.** 191.

. . . . .

Cows Running Milk

Q. 445.—*Is there any effective treatment for cows that run their milk after calving? In one case the owner estimates a loss of one-third of the milk from continuous dribbling from all teats between milkings, which are carried out three times a day. If dried off, is the cow likely to do the same in the next lactation?*

A.—"Running milk" is a common occurrence with freshly calved cows, particularly inherently fast milking animals. This form of slight running of the milk from the teats though undesirable is not a real problem and is caused by the high internal udder pressure prior to milking being just sufficient to force open the teat orifice.

The much more serious cases occur when the milk ejection (or let down) process of these freshly calved animals comes into play a long time before milking is due to start. In these cases the considerably higher internal udder pressures cause a more continuous flow of milk from the teats. The cows which run milk in this way are normally persistent offenders who appear to be stimulated to eject their milk (a slight dripping of milk from the teats) by either high internal udder pressure or the first indication of an approaching milking. Even in these cases, however, the most serious loss of milk may not be due to the running of milk but to incomplete milking which follows a breakdown in the normal milk ejection routine. These cows which are prematurely stimulated to eject their milk up to half an hour before milking starts are probably not able to have a further efficient ejection at the correct time. Because of this they show a very marked irregularity in their milk yields.

With these cows neither a teat operation nor the persistent use of a collodion seal is likely to be effective and where a cure is possible it will probably be best brought about by an adjustment of the general routine of milking. The offending cows should be milked first and, where possible, they are best milked immediately they enter the cowshed even though milking the rest of the herd may not follow until some time later. It is important that no grooming or hosing should take place a long time before milking starts and that the stimulus to milk ejection should be as positive as possible. Washing with warm water and concentrate feeding should immediately precede the start of milking and it is most important with these cows to keep strictly to a very constant routine.

Heifers which persistently run milk in this way are not likely to improve with age.

. . . . .

Necrosis of Extremities in Suckling Offspring

Q. 446.—*A Dachshund bitch which had been injected with penicillin before whelping produced a litter in which two puppies lost a portion of their tails at 14 days of age. Another Dachshund belonging to the same owner (no relation, different sire) was injected with penicillin four days after whelping, and five days later two of her puppies lost a portion of their tails. A sow injected with penicillin before farrowing produced piglets, several of which developed necrosis and loss of ears. A mongrel bitch injected with penicillin before a caesarean operation produced one puppy which lost an ear. Is there any connection in these cases with the penicillin injections and, if not, can this condition be explained?*

A.—Available information does not permit this question to be answered adequately, but similar cases in puppies are known to have occurred. In these cases the bitches in question were injected with penicillin immediately after whelping on account of a mild metritis. Penicillin that has been administered other than by intramammary injection is not excreted in the milk of cows (H. W. Seeley *et al.* (1945). *Science.* **102.** 44) but there is inadequate data in the case of sows and bitches.

On the assumption that necrosis of the extremities reflected a deficiency of vitamin A, a litter of Scottish Terrier puppies in which the early stages of hair loss and keratinisation of the tail tip had been observed was treated with a vitamin A concentrate. In this instance there was a rapid and complete resolution of the lesions, and it is suggested that similar treatment should be attempted in similar cases.

It is difficult to connect the administration of penicillin to the dam with apparent vitamin A deficiency in the offspring. Unless in the species in question appreciable quantities of the antibiotic are excreted in the milk they are unlikely to "modify" the intestinal micro-flora of the offspring. It would be helpful to the elucidation of cases of this type if a sample of the milk could be secured and its vitamin A activity determined.

SWEDISH STUDENT

A 22-year-old Swedish student, studying the English language at Upsala University, wonders whether a veterinary surgeon in south or central England would give him hospitality in June and/or July of this year. He is anxious to practise his English and to learn something of our manners and customs; in return, as the son of a Swedish veterinary surgeon used to helping his father with his work in the holidays, he would be very willing and interested to do all that he could, and he is accustomed to driving a car.

If any veterinary surgeon could offer to help this young man, would he kindly write to the General Secretary, B.V.A., 7, Mansfield Street, London, W.1.

ABSTRACTS

Histopathology of Nephritis in the Dog*

These articles, comprising excerpts from a thesis submitted in May, 1951, contain a survey of the histopathology of 321 cases of nephritis in dogs from which material was available in the Armed Forces Institute of Pathology. Two hundred and eighty-three cases were classified as interstitial nephritis. Of these, 79 were attributed to leptospirosis on the basis of symptoms, demonstration of organisms, or positive agglutination titres. Fifty-six cases were associated with *Dirofilaria immitis* infestation. One case was associated with histoplasmosis, one with *Dioctophyme renale*, and two with tuberculosis. Thirty-four cases were grouped as focal suppurative nephritis (in six cases due to ascending infection), and these cases were considered to be important as showing transition stages to lesions indistinguishable from chronic interstitial nephritis. Of the remaining cases, 27 were classed as acute interstitial nephritis ; although some cases of leptospirosis may have been included, no organisms were demonstrable in sections. There were 88 cases of chronic interstitial nephritis, of which 67 were severe. These changes could not be associated with leptospirosis in this study, and it is suggested that while further observations are needed [see McIntyre, W. I. M., & Montgomery, G. L. (1952). *J. Path. Bact.* **64.** 145–160], if it is assumed that chronic interstitial nephritis is preceded by a severe focal interstitial nephritis, then the suppurative type of interstitial nephritis seemed to be the likely precursor.

Thirty-eight cases were classified as showing inflammatory vascular diseases—acute glomerulonephritis (1), subacute glomerulonephritis (2), chronic glomerulonephritis (1), "sclerosing nephropathy" (17) and infarction 12 (of which six may have been septic). Details of the histopathological changes should be sought in the original papers, which are well illustrated.

E. C.

* **The Histopathology of Nephritis in the Dog : I.—Introduction. II.—Inflammatory Interstitial Diseases. III.—Inflammatory Vascular Diseases of the Kidney.** Monlux, A. W. (1953). *Amer. J. vet. Res.* **19.** 425–439, 440–447.

* * * * *

Cerebrospinal Fluid in Dogs*

Cerebrospinal fluid was obtained by sub-occipital puncture from the recumbent dog under barbiturate narcosis. It was taken from normal animals or animals showing no nervous symptoms, and from animals showing nervous symptoms or in the catarrhal stage of distemper. Among the findings recorded, the following may be noted : Normal c.s.f. was colourless. Its pressure varied widely, averaging 86·5 mm. water. The specific gravity averaged 1·0056 (1·0033 to 1·0125), and few cells (small lymphocyte-like) were present. The total protein content was 27·5 mg. per cent. (11 to 55), the glucose content 74 mg. per cent. (61 to 116), and the chloride content 808 mg. per cent. (761 to 883).

In the pathological fluids, most of the changes concerned the cell content (15 types are listed) and the total protein content. Practically no purulent changes were found. No definite correlation between certain clinical syndromes and the changes in the c.s.f. was found, but there appeared to be a correlation between the pathological changes demonstrated in the CNS and the changes in the c.s.f.

E. C.

* **Cerebrospinal Fluid in Dogs.** Teunissen, G. H. B., & Verwer, M. A. J. (1953). *Int. Vet. Cong., Stockholm, Proc. Part I.* **2.** 1022–1028.

Liver Function in Dogs*

Liver function tests were carried out in 25 dogs in which a diffuse hepatic fibrosis had been induced by the administration of carbon tetrachloride.

Bromsulphalein excretion appears to be the best test. One millilitre of 1 per cent. bromsulphalein in 0·9 per cent. saline (W/V) is injected intravenously for each kg. bodyweight. The amount of bromsulphalein present in the blood 15 minutes after the injection is then estimated chemically. In normal dogs only about 5 per cent. bromsulphalein is retained but dogs with liver damage show a retention of more than 60 per cent.

Serum bilirubin increased well above the normal value of less than 0·2 mg. per 100 ml. blood when liver lesions were induced. With liver damage causing 30 per cent. bromsulphalein retention serum bilirubin levels were between 0·4 and 0·8 mg. per cent., and with 54 and 80 per cent. bromsulphalein retention, the levels were 2·3 and 3·7 mg. per cent. respectively. When the serum bilirubin is raised to 2·0 mg. per cent. the outcome is not necessarily fatal, but the prognosis is bad. If the serum bilirubin exceeds 0·5 mg. per cent., the pigment becomes detectable in the urine. Tests for urobilinogen proved to be of little value, since the level appears to vary with the bacterial activity in the intestine.

The alkaline phosphatase levels of serum shows a correlation with the bromsulphalein retention percentage. The high alkaline phosphatase figures could, however, indicate either obstruction of the bile canalicule or damage of the liver parenchyma.

Galactose tolerance and amino-acid tolerance tests showed no significant change in the dogs with liver damage.

During the development of liver damage by the administration of carbon tetrachloride, the albumin/euglobulin ratio decreased sharply but with recovery it returned to normal values. Any infection or inflammation, *e.g.*, at perineotomy for easy catheterisation, caused a serious disturbance of the serum protein pattern. In the dogs receiving carbon tetrachloride, the blood showed delayed clotting and poor clot retraction, but when the hepatic disturbance became chronic, clotting time returned to normal values. Thymol turbidity, zinc sulphate and 13·5 per cent. sodium sulphite were used as empirical tests for altered serum proteins, but gave results of little value in assessing the degree of derangement, since they are insensitive in the dog in contrast to man.

F. R. B.

* **The Study of Liver Function in Dogs.** Gorrall, A. G., & Bardawill, C. J. (1952). *Canad. J. Med. Sci.* **30.** 256–271.

REPORT

[Department of Agriculture, New Zealand : Annual Report, 1952/53, of the Animal Research Division.]

This is a comprehensive report by Dr. J. F. Filmer, the Director of the Division.

Details are given of the main projects at the Animal Research Station, Wallaceville, which is concerned mainly with animal disease problems, and the Animal Research Station, Ruakura, where genetical and nutritional problems are studied.

During the year the diagnostic services handled 17,401 specimens from 5,815 cases.

The following conditions were recognised for the first time in New Zealand :—

Hyperkeratosis, which occurred in calves having access to chlorinated naphthalenes being used as wood preservatives.

Johne's disease in sheep on two properties in South Canterbury.

Scrapie in Suffolk sheep, imported from the United Kingdom two years before the first symptoms developed.

In connection with sheep nutrition projects, the rickets-producing factor in green feeds has now been identified as carotene. This is an extremely important finding, as carotene is present in considerable quantities in all green feeds and is the main source of vitamin A.

The next problem is to consider carefully the balance between carotene and vitamin D in all animals grazing on green feed, particularly during the winter when vitamin D supply may be low. Experiments have been designed to study the effect in sheep of excessive intakes of carotene and vitamin A.

Investigations have continued into borderline cobalt deficiency. In therapeutic trials injected vitamin B_{12} was as effective as dosed cobalt in promoting growth in deficient lambs. The cobalt content of the liver of B_{12} treated lambs was low despite good growth rate. After injection of 100 μg. vitamin B_{12} per week for eight weeks, two lambs continued to grow for three months after treatment was stopped, but at slower rates than animals which were receiving cobalt orally.

In " bearing trouble " in ewes (prolapse of the vagina) an attempt has been made to define the anatomical changes in normal and abnormal ewes during pregnancy and lambing. To this end a large number of ewes have been examined by X-ray and dissection techniques.

Studies have been continued on ovine infertility, and some progress has been made, particularly on one specific infectious disease. A specific bacterium has been isolated regularly from the semen and lesions in the genitalia of affected rams. An identical organism has been recovered from diseased foetal membranes, aborted foetal lambs, and from the colostrum of naturally infected ewes.

This bacterium has been classified in the Brucella genus on the basis of cell morphology, colonial morphology, cultural characteristics, biochemical properties, pathogenicity for laboratory animals, and sensitivity to antibodies and sulphonamides *in vitro*. This CO_2 sensitive, non-smooth, stabilised mutant behaves in the dye sensitivity and DEDTC tests in a fashion which suggests that the organism could be a variety of Brucella melitensis adapted to sheep.

Four series of trials have been completed in connection with grazing behaviour in relation to bloat. The degree of bloat, ruminal movement, eructation and grazing behaviour were noted. Break grazing with or without restriction gave no effective control of bloat. Long feed proved definitely safer than feed of the same botanical composition grazed at shorter stage of growth.

In pig feeding there was no significant increase in efficiency of feed conversion from feeding penicillin, aureomycin, or lissapol N. with separated milk.

In connection with myxomatosis an interesting record is that during November and December, 1951, the virus was deliberately released in 21 areas heavily infested with rabbits. Final results show that there was some spread to rabbits in eight areas, but in only three of these was there a significant reduction in rabbit population. In no area was there any wide spread of the disease.

There is no evidence that the disease persisted through the winter of 1952. Further releases were made in seven areas in December, 1952. So far, there are indications of limited spread in some areas, but in no area has there been an important spread of the disease.

Details of many other projects are given, *e.g.*, fecundity in ewes, increase in lambing percentage by injection of P.M.S., experimental studies of fertility in dairy bulls, uniformity trials with identical and fraternal twins, influence of climate on the performance of dairy cattle, effect of thyroxin injection on production, etc.

C. V. D.

REVIEW

[**Gestation Periods, a Table and Bibliography.** Third Edition, 1953. By J. H. Kenneth, with additions by G. R. Ritchie. Technical Communications No. 5 of the Commonwealth Bureau of Animal Breeding and Genetics, Farnham House, Farnham Royal, nr. Slough, Bucks. Price 7s. 6d.]

Anyone with a biological turn of mind will be entertained as well as edified by reference to this interesting and useful publication. As stated in the preface by J. P. Maule, the Director of the Bureau, this is an amplified edition of that first published in 1943 and revised in 1947. This, the third edition, can almost be described as comprehensive, the data being presented in a concise fashion under columns headed " average," " minimum " and " maximum."

All figures quoted are from a series of some 600 articles which are referenced in a special index at the back. All the domestic animals are adequately covered, which makes this a specially worthwhile reference book for veterinarians.

IN PARLIAMENT

THE ANIMALS (CRUEL POISONS) BILL
FIRST READING

The Animals (Cruel Poisons) Bill, which has been introduced in the House of Commons by Mr. Spearman, Conservative M.P. for Scarborough and Whitby, was read for the first time on Wednesday, February 17th. It is a private member's Bill to prohibit the killing of animals by strychnine or other cruel poisons, and to establish a committee to advise the Home Secretary on the relative cruelty and effectiveness of poisons which are, or might be, used to kill animals. The maximum penalty proposed in the Bill is a fine of £25 or three months' imprisonment, or both.

The Bill provides that " any person who, with intent to kill or injure any animal, places or causes to be administered to any animal any strychnine or designated poison shall be guilty of an offence." The advisory committee would be called the Animal Poisons Committee, and would consist of 10 members, of whom five would be appointed by the Chairman of the Poisons Board from the members of that Board, two would be appointed by the Royal College of Veterinary Surgeons, two by the British Veterinary Association, and one by the Royal Society for the Prevention of Cruelty to Animals.

The Bill also provides for the abolition of the Home Secretary's power to make rules authorising the sale or supply of strychnine or designated poison for the purpose of killing animals, and authority granted to any person to purchase or use strychnine or designated poison for such a purpose would cease to be valid. It excludes from the prohibition persons or institutions who administer strychnine or any other poison to an animal for the purpose of education or research. The Bill would not apply to Northern Ireland, and it is proposed that it should come into operation on January 1st, 1955.

Questions

Over-shot Jaws and Bull Licensing

Mr. Patrick Maitland (February 15th) asked the Secretary of State for Scotland what representations he has received from representatives of breeders about the definition of over-shot jaws in connection with the licensing of bulls.

Mr. J. Stuart: A deputation from a number of the breed societies and other bodies concerned recently represented to my Department that too rigid a standard is being applied in rejecting bulls for licence because of over-shot jaws. I have undertaken to look at the matter again in consultation with the Licensing of Bulls Advisory Committee.

Livestock Losses

Mr. F. Willey (February 17th) asked the Minister of Food to state the losses through overgrading of livestock and condemnation after slaughter and subsequent regrading of meat incurred by his Department for the latest available quarter.

Major Lloyd George: The latest quarter for which this information is available is that ended September 30th, 1953. The losses in that quarter from overgrading of livestock, condemnations after slaughter and regrading of meat are, respectively, £1,126,218, £569,670 and £751,023. These losses vary with the season and the prices paid for fatstock.

Slaughtering (Interim Report)

Mr. Peyton (February 17th) asked the Minister of Food to make a statement on the Interim Report of the Committee on Slaughtering.

Major Lloyd George: The Government have accepted the recommendations of the Committee except that relating to the compulsory leasing of slaughterhouses by local authorities. But the Government will seek to ensure that slaughterhouses now in Ministry occupation will be made available as public slaughterhouses for such local authorities as are willing to operate them. I am arranging for an early meeting with representatives of local authorities who I am sure will fully co-operate in taking whatever measures are necessary by licensing private slaughterhouses or by providing public facilities to ensure that there is no interruption to meat supplies on decontrol next July.

. . . . . .

Landrace Pigs

Sir R. Boothby (February 18th) asked the Minister of Agriculture whether he will now state the policy of his Department with regard to the importation of Swedish Landrace pigs.

Mr. Grimond asked the Minister of Agriculture if he will now allow the importation of more Landrace pigs for breeding purposes in Scotland.

The Minister of Agriculture and Fisheries (Sir Thomas Dugdale): At the request of my right hon. Friend the Secretary of State for Scotland, an Order will be made permitting the import of a limited number of Landrace pigs into Scotland, subject to veterinary safeguards. I am not at present satisfied that a further import into England and Wales is justified, but I am keeping under review the whole question of future imports of Landrace pigs.

Sir R. Boothby: Does my right hon. Friend realise that the result of his policy is that the English farmers have had to pay £1,000 for a Landrace pig, that the farmers in the Channel Islands and the Isle of Man have got them for one-tenth of that price, and that the Scottish farmers have not been allowed to import them on any scale? How does the right hon. Gentleman, as an English Minister, justify his action in refusing to allow Scottish farmers to get the best pig for the job, after urging those farmers to produce the best quality bacon?

Sir T. Dugdale: If the hon. Gentleman will read my answer, he will see that I shall allow some pigs into Scotland in the immediate future. My responsibility here is for animal health, and I must be extremely careful about the importation of any live animals from the Continent.

Mr. Grimond: Can the Minister say how many pigs he will allow to be imported into Scotland, and can he tell us why there should be these restrictions on their import?

Sir T. Dugdale: The restriction is purely on animal health grounds, because we must be extremely careful as far as health is concerned. As regards numbers I am in consultation with my right hon. Friend the Secretary of State for Scotland.

. . . . . .

Transit of Horses (Casualties)

Mr. Chapman (February 18th) asked the Minister of Agriculture the total number of horses, for the year 1953, returned by owners of horse-carrying vessels, under Section 13 of the Horses (Sea Transport) Order, 1952, as having died or having been killed or injured in transit.

Sir T. Dugdale: There were nine casualties among the 17,000 horses shipped to or from Great Britain during 1953. Six horses died and three had to be slaughtered because of illness or injury.

Mr. Chapman: Since the Sea Transport Order was introduced primarily because of the abuse and because of the notoriety of this traffic across the Irish Sea, do not those figures indicate that the Order is almost a dead letter already, when only nine casualties are reported out of 17,000 horses carried in this nefarious traffic? What is the Minister going to do in order to get a proper check on the ships?

Sir T. Dugdale: I should have thought that the figures gave an entirely different construction and that they showed a satisfactory position. If, however, the hon. Gentleman has any evidence of contravention of the Order and will let me have it, I shall be glad to look into it.

. . . . . .

Imbra Trap Trials

Wing-Commander Bullus (February 18th) asked the Minister of Agriculture if he will make a statement on the results of the trial of the Imbra humane rabbit trap.

Sir T. Dugdale: These trials will be going on throughout the current trapping season and I do not expect to reach any definite conclusions until the end of April or early in May, when the trapping season ends.

Wing-Commander Bullus: Is my right hon. Friend aware that there is a widespread feeling about the continued use of the gin trap, and will he kindly speed up the provision of any humane alternative?

Sir T. Dugdale: Yes, and whilst I entirely sympathise with the House and am doing my utmost to speed up some alternative to the gin trap, we must be certain that before we discard it we have an effective substitute. I had hoped to be able to report to the House this month but, owing to the recent hard frost, as I have said, I shall not be able to report to the House on the latest experiments before April or May.

Mr. Woodburn: Is the Minister aware that his Joint Parliamentary Secretary recently implored this House to give him every assistance in preventing disease from killing off the rabbits which ought to be preserved for the rabbit and fur trade? Could the Minister explain the contradiction between the two policies, where on the one hand the Ministry is trying to preserve rabbits for the market and on the other is trying to invent traps to kill them?

Sir T. Dugdale: My hon. Friend said nothing of the kind. This is an entirely different question. As the House knows, I set up a committee under my hon. Friend the Joint Parliamentary Secretary on the curious disease of myxomatosis, which I hope will report in the early spring.

. . . . . .

Foot-and-Mouth Disease Report

Mr. Peyton (February 18th) asked the Minister of Agriculture when he expects to receive the report of the Gowers Committee on foot-and-mouth disease.

Sir T. Dugdale: By May or June.

Mr. Peyton: Is my right hon. Friend aware of the anxiety and interest and even impatience with which the conclusions of this Committee are awaited, particularly with regard to the use of vaccines? Will he represent to the Committee that they should expedite their report?

Sir T. Dugdale: The Committee are proceeding as fast as they can. They are a very high-powered Committee and they will have a great deal of influence on the future of the livestock industry in this country. I am perfectly satisfied that they are getting on as quickly as possible.

NOTES AND NEWS

Diary of Events

Mar. 3rd.—Meeting of the Southern Counties Division, B.V.A., at the Grand Hotel, Bournemouth, 6.30 p.m.

Mar. 4th.—General Meeting of the Central Division, B.V.A., at the Royal Veterinary College, Camden Town, N.W.1, 6 p.m.

Mar. 5th.—General Meeting of the Society of Practising Veterinary Surgeons, B.V.A., at the Royal Mount Ephraim Hotel, Tunbridge Wells, 2.30 p.m.

Mar. 5th.—Annual General Meeting of the South Wales Division, B.V.A., at the Dolwar Café, Carmarthen, 2 p.m.

Mar. 17th.—Laboratory Meeting of the Royal Society of Medicine, Section of Comparative Medicine at the Royal Veterinary College, N.W.1, 4.30 p.m.

Mar. 18th.—Annual Dinner and Dance of the East Midlands Division, B.V.A., at the George Hotel, Nottingham, 7.15 p.m.

Mar. 20th.—Annual General Meeting of the Biochemical Society in the Department of Chemistry, University College, Gower Street, London, W.C.1, 10.45 a.m.

Mar. 25th.—V.V.B.F. Ladies' Guild: North of Scotland Division, B.V.A., Annual Dance, Aberdeen.

Mar. 26th.—Annual Dinner and Dance of the Yorkshire Division, B.V.A., Parkway Hotel, Leeds.

Apr. 10th.—Reunion Dinner of the R.V.C. '52 Club at "Ye Miller of Mansfield," Streatley, 7.30 p.m.

Sept. 19th—25th.—72nd Annual General Meeting and Congress of the British Veterinary Association at Torquay.

* * * * *

B.V.A. Council and Committee Meetings at the University of Glasgow

Monday, April 12th

10.30 a.m. Veterinary State Medicine Committee.
2.15 p.m. Home Appointments Committee.
3.30 p.m. Parliamentary and Public Relations Committee.

Tuesday, April 13th

10.30 a.m. Organising Committee.
1.45 p.m. General Purposes and Finance Committee.

Wednesday, April 14th

10.0 a.m. Council Meeting.

* * * * *

PERSONAL

Births.—Clarke.—On February 6th, 1954, at Ashleigh, Newcastle upon Tyne, to Margaret, wife of Alistair A. Clarke, M.R.C.V.S., a son—a brother for Kenneth Aynsley.

Theobald.—On January 12th, 1954, to Leslie and Ninetta (*née* Briggs) Theobald, B.S.V.SC., MS.R.C.V.S., at 53, Eastgate, Stafford, a brother (Jonathan) for Christine.

* * * * *

R.C.V.S. OBITUARY

Blair, James Steedman, B.SC. (EDIN.), M.R.C.V.S., of Winchmore Hill, London, N.21. Graduated London, July 16th, 1931. Died suddenly February 15th, 1954.

McKinney, David Fleck, M.R.C.V.S., Edenbank, 19, Broughshane Road, Ballymena, Co. Antrim. Graduated Dublin, January 17th, 1924. Died February 13th, 1954.

Pike, James Stanley, M.R.C.V.S., of 95, New Road, Llanelly, South Wales. Graduated London, July 23rd, 1896. Died February 16th, 1954; aged 81 years.

* * * * *

J. S. Blair, B.Sc., M.R.C.V.S.

Personal Tributes

Professor C. Formston writes:—

I should very much like to pay tribute to the memory of James Steedman Blair, whose tragic passing at a relatively early age has come as a shock to many of us. "Jimmy" Blair, as he was affectionately known, was a worthy Scotsman who migrated south to the benefit of all those with whom he came into contact. I had the privilege and pleasure of knowing him during the past quarter of a century and through him I appreciated the value of true friendship. One can ill afford to lose such a friend, and I, personally, will feel his loss acutely. His qualities were many, but he was essentially a kind man, modest, sympathetic and understanding.

He was ever mindful of that bond of affection which exists between people and their animals, and he gave a service to the public which was second to none. He will be missed by a large clientele who not only looked upon him as a competent veterinary surgeon but as a friend. During the stresses and strains of everyday life he was always cheerful and a keen sense of humour was ever a source of comfort to himself and a joy to those around him. "Jimmy" Blair was loyal to his profession and to his professional brethren. He was proud of his home and his family. He was indeed the ideal husband and father. Our deepest sympathy is with his widow and two daughters in the hour of their tragic and irreparable loss.

. . . . . .

Mr. J. Pickup, who knew Mr. Blair for more than 20 years, also writes:—

The title of gentleman fitted Jimmy exactly, for he was courteous, gentle and kind. Many of his clients could vouch for his skill, patience, perseverance and generosity. We who enjoyed his friendship and hospitality know how his work and his home came first in everything. For years he practised in Tottenham and remained at his post through all the dark days of the war—serving the community faithfully and without thought of self or reward.

The profession has lost a member of sterling character, and I mourn the loss of a great friend.

. . . . . .

James Steedman Blair died at his home in Winchmore Hill on Monday, February 15th. It was as sudden as that, for he had made remarkable strides towards recovery from the stroke which he had suffered in December. The profession has lost a man whose life was devoted to the well-being of the patients in his practice. When I joined him as an assistant the practice was beginning to flourish again after the depression of war years, and Jimmy Blair was working at full pressure to maintain it in this condition. He proved to be an employer of the greatest charm and fairness and also a friend and teacher who could bend his views to the progressive nature of veterinary medicine and practice to-day. He had a maxim in which he believed, that the absolute integrity of the individual practitioner was the main factor in the elevation of his profession. He lived up to that and as a result he will be missed by his colleagues and even more by his clients.

S. C. T.

. . . . . .

I was filled with great sorrow when I heard of the death of my old pupil and friend, James Steedman Blair.

"Jimmy" Blair would have been the last man to lay claim to so-called academic brilliance, but he possessed in great measure qualities which were much more valuable to his patients and to the community. He was modest, gentle and kind, and upright in all his dealings. He did his utmost to render efficient service to his clients and patients and in consequence he won the high regard of the people in his area. He stood to his post through all the terrors of the air bombardment of London, and I am afraid that the strain made a deeper impression than was visible to the eye.

J. McC.

* * * * *

D. F. McKinney, M.R.C.V.S.

An Appreciation

Professor H. G. Lamont writes:—

Mr. McKinney and I were fellow students in Dublin. He was a good student, keeping himself abreast of the latest scientific developments in his profession, and to meet him was to like him.

Mr. McKinney built up a splendid practice from scratch and his services were highly esteemed by all sections of the community.

He was a man of great integrity and high ethical standards and students who saw practice with him quickly learned that only their best was good enough. Veterinary surgeons practising in Ballymena and the neighbourhood held him in the highest regard. A few years ago he was due to be elected President of the North of Ireland Division of the B.V.A., but owing to illness he was unable to accept this honour. He was a staunch supporter of the Association and only illness prevented him from attending its meetings.

On retiring from practice a few months ago the farming community in the Ballymena district made him the recipient of a handsome presentation. He was a member of the County Antrim Agricultural Society, the Royal Ulster Agricultural Society, and the Mid-Antrim Hunt and Ballymena Golf Club.

He is survived by his widow and one son, Dr. Frank McKinney, who is engaged in research work with the Severn Trust. To them and to his mother and brothers very sincere sympathy is extended.

* * * * *

Mr. J. Stanley Pike, M.R.C.V.S.

PERSONAL TRIBUTES

It is with deep regret that we record the death of J. Stanley Pike, M.R.C.V.S., at 95, New Road, Llanelly. The funeral took place at Oystermouth Cemetery, Swansea, on Friday, February 19th. The service at the house was conducted by Canon I. Davies, of All Saints' Church, Llanelly, whilst the Rev. H. Williams, Vicar of Sketty, officiated at the graveside. The following members of the profession attended: Messrs. D. E. Pugh, Swansea, D. G. Morgan (representing the South Wales Division, B.V.A.), Neath, and D. Hedley Williams, of Neath.

With the passing of Stanley Pike another link with the "horse era" is broken; he had been in practice for over 50 years and during that period his main interest had been in horses. During the latter part of his career he had an extensive colliery practice. He was a founder-member of the South Wales Division of the B.V.A., a member of Council in its earlier years, and became its President in 1938. To us who had the privilege of knowing him intimately he will be remembered for his kindness and consideration, especially when confronted with a difficult problem. He is survived by three sons, to whom we extend our deepest sympathy.

D. G. M.

. . . . . .

Mr. D. HEDLEY WILLIAMS writes:—

With the death on February 16th of J. Stanley Pike there has passed from the scene one more link with the bygone days of stalwart veterinary surgeons specially skilled in the handling and treatment of horses, days which we, the younger members of the profession, feel have departed to the detriment of our profession at large and ourselves in particular.

Stanley Pike qualified at the Royal Veterinary College, London, on July 23rd, 1896, and for a time acted as assistant to the late W. J. Mulvey, of London, whose true ability and strength of character was so forcibly reflected in Stanley Pike. In 1897 he returned to his native Swansea and set up a mixed town practice and continued there until 1940 when, because of his colliery appointments, he transferred to the neighbouring town of Neath, and there continued active practice until 1946.

I was privileged for five years to be his professional partner, and his true friendship, sound advice, quiet sense of humour and kindness imbued faith in me in my fellow men and my profession. He was a sound and efficient veterinary surgeon, but, of more importance, he was a man of moral integrity.

May we who are left so dedicate ourselves to our daily tasks as to be worthy of his example.

To his three sons and their families we would say that Stanley Pike truly upheld the ideals of his profession—his life and work was a job well done.

£30,000 OFFERED FOR ANIMAL HEALTH TRUST LABORATORIES

Readers of the *Record* will be interested to hear of an outstandingly generous offer which has just been made to the Animal Health Trust by the Boreham Institute, an independent charitable body. On behalf of the Trustees and Council of the Institute, Sir Stanford Cooper has offered to place Lilystone Hall, Essex, together with some 70 acres of land, at the Trust's disposal, for the purpose of enabling the Trust's farm livestock research work to be fully developed. In addition to the property the Institute is prepared to spend £30,000 on the provision of laboratories, animal houses and living quarters for the scientific staff.

In announcing the Institute's decision Sir Stanford Cooper said: "The Institute regards the Trust's aims and work on farm livestock as of great national importance, and therefore deserving of development to the fullest extent."

The offer is made provided that the agricultural industry will subscribe a minimum of £20,000 a year to enable the Trust to put the establishment to effective use. As readers may know, the Animal Health Trust is making an appeal to every livestock farmer to donate a minimum of £1 a year for five years, and this appeal has the support of the National Farmers' Union, the Milk Marketing Board and many breed societies.

In referring to the offer made by the Boreham Institute, the Duke of Norfolk, President of the Animal Health Trust, said: "The generosity of this offer must appeal to farmers all over the country. It is an encouraging challenge to them to take a practical share in tackling their livestock disease problems, and it sets us an initial minimum target in our appeal for funds for this purpose."

A subsequent letter in *The Times*, over the signature of Sir James Turner, commended the "munificent offer" and expressed a warm hope that the response to the appeal would make it possible to develop the scheme at an early date.

* * * * *

AREA ERADICATION PLAN FOR TUBERCULOSIS

We reproduce below the Ministry of Agriculture statement showing the number of cattle in each county on June 4th, 1953, and the number of cattle in Attested Areas and Attested Herds on December 31st, 1953. The total figure for Great Britain, shown in column one, indicates an increase of about 200,000 more cattle over the returns for June 4th, 1952. For convenience, the figures in the second column for counties constituting a separate Attested Area, or included wholly in an Attested Area, are shown as corresponding with, instead of varying slightly from, the number of cattle on June 4th, 1953.

By December 31st, 1953, the number of Attested Herds was as follows:—

England	..	54,332
Wales	..	29,158
Scotland	..	28,385
		111,875

and, in addition, there were 2,408 Supervised Herds containing over 79,000 cattle. These herds require only one clear tuberculin test in order to qualify as Attested Herds.

	Total cattle June 4th, 1953	Cattle in Attested Areas and Herds	
		Number	Percentage of total cattle
ENGLAND			
Bedford	44,785	13,630	30·4
Berkshire	88,816	56,510	63·6
Buckinghamshire	114,906	42,540	37·0
Cambridge	31,097	11,440	36·8
Isle of Ely	21,513	2,270	10·6
Chester	247,876	77,980	31·5
Cornwall	277,358	77,380	27·9
Isles of Scilly	558	558	100·0
Cumberland	242,400	156,850	64·7
Derby	187,772	40,740	21·7
Devon	420,693	145,240	34·5
Dorset	162,530	86,200	53·0
Durham	118,862	42,400	35·7
Essex	119,462	58,770	49·2
Gloucester	199,464	80,220	40·2
Hampshire	155,282	86,220	55·5
Isle of Wight	21,754	11,980	55·1
Hereford	138,807	49,790	35·9
Hertford	61,794	31,640	51·2
Huntingdon	28,118	5,610	20·0
Kent	112,724	50,580	44·9
Lancaster	285,802	96,450	33·7
Leicester	166,567	36,370	21·8
Lincoln (Holland)	28,982	1,730	6·0
Lincoln (Kesteven)	71,619	11,720	16·4
Lincoln (Lindsey)	165,547	21,690	13·1
London	—	—	—
Middlesex	7,790	3,010	38·6
Norfolk	191,855	68,400	35·7
Northampton	148,251	32,340	20·8
Soke of Peterborough	7,103		
Northumberland	209,365	45,570	21·8
Nottingham	112,255	22,270	19·8
Oxford	107,580	50,490	46·9
Rutland	20,107	1,730	8·6
Salop	287,934	92,720	32·2
Somerset	331 272	147,250	44·4
Stafford	241,598	47,270	19·6
Suffolk, East	77,796	35,870	46·1
Suffolk, West	40,247	18,010	44·7
Surrey	55,283	29,690	53·7
Sussex, East	106,738	43,540	40·8
Sussex, West	78,728	41,110	52·2
Warwick	146,999	44,850	30·5
Westmorland	102,352	81,480	79·6
Wiltshire	214,136	105,170	49·0
Worcester	99,917	28,410	28·4
York, E. Riding	138,131	12,780	9·3
York, N. Riding	254,870	75,960	29·8
York, W. Riding	349,583	104,530	29·9
ENGLAND: Total	6,844,978	2,428,958	35·5

	Total cattle, June 4th, 1953	Cattle in Attested Areas and Herds	
		Number	Percentage of total cattle
WALES			
Anglesey	60,258	19,750	32·8
Brecon	48,688	35,570	73·1
Caernarvon	64,152	36,540	57·0
Cardigan	85,456	85,456	100·0
Carmarthen	147,428	147,428	100·0
Denbigh	105,047	50,610	48·2
Flint	62,220	17,590	28·3
Glamorgan	78,590	28,070	35·7
Merioneth	42,865	34,070	79·5
Monmouth	71,363	24,260	34·0
Montgomery	102,279	70,860	69·3
Pembroke	110,519	86,120	77·9
Radnor	37,722	23,290	61·7
WALES: Total	1,016,587	659,614	64·9
ENGLAND AND WALES: Total	7,861,565	3,088,572	39·3
SCOTLAND			
Aberdeen	230,899	58,190	25·2
Angus	71,499	24,660	34·5
Argyll	64,175	51,687	80·5
Ayr	160,843	160,843	100·0
Banff	55,303	14,520	26·3
Berwick	36,654	14,790	40·4
Bute	11,702	11,702	100·0
Caithness	26,393	10,460	39·6
Clackmannan	4,776	3,410	71·4
Dumfries	111,295	111,295	100·0
Dunbarton	18,041	16,980	94·1
East Lothian	17,357	7,220	41·6
Fife	68,269	42,280	61·9
Inverness	50,444	34,640	68·7
Kincardine	41,993	10,940	26·0
Kinross	10,002	6,360	63·6
Kirkcudbright	80,016	80,016	100·0
Lanark	98,060	86,160	87·8
Midlothian	25,497	15,710	61·6
Moray	29,600	12,920	43·6
Nairn	8,820	4,480	50·8
Orkney	47,899	19,960	41·7
Peebles	12,101	10,640	87·9
Perth	95,154	40,990	43·1
Renfrew	31,885	31,885	100·0
Ross-shire	38,061	20,210	53·1
Roxburgh	38,244	17,350	45·4
Selkirk	6,801	4,910	72·2
Stirling	43,340	36,090	83·3
Sutherland	8,766	7,170	81·8
West Lothian	16,543	10,990	66·4
Wigtown	79,084	79,084	100·0
Zetland	7,020	7,020	100·0
SCOTLAND: Total	1,646,536	1,065,562	64·7
GREAT BRITAIN: Total	9,508,101	4,154,134	43·7

* * * * *

PROHIBITION OF MOVEMENT AND MARKETING OF POULTRY

FURTHER RESTRICTIONS

The Ministry of Agriculture and Fisheries announced that further restrictions would come into force on February 19th to strengthen the safeguards against the spread of fowl pest, and in particular to enable local authorities to exercise more effective control generally over the movement and marketing of poultry.

Apart from the prohibition of movement of poultry into a certain area of the country which came into force on February 5th, the principal changes made by the new Order (The Live Poultry (Restrictions) Order, 1954), which revokes the Live Poultry (Restrictions) Order, 1952, and replaces most of its provisions, are as follows:—

(1) *Prohibition on sales of poultry.* Poultry or day-old chicks produced on hatchery premises and sold by auction in the circumstances permitted by the Order must now be moved direct from the hatchery to the premises of the purchaser.

(2) *Licensed sales of poultry for immediate slaughter.* Local authorities may now grant licences for these sales only if all poultry sold on the premises on the day of the sale are to be sold by auction, and store poultry and day-old chicks are not to be sold on the premises on the same day.

(3) *Licensed sales of store poultry.* Local authorities may now grant licences for these sales only if all poultry sold on the premises on the day of the sale are to be sold by auction and if poultry for immediate slaughter, poultry carcases and day-old chicks are not to be sold on the premises on the same day. A rearer of poultry may now send any number of birds to a licensed store poultry market.

Poultry dealers are not now allowed to send poultry to store markets.

(4) *Restrictions on the movement of poultry.* The prohibition on the movement of poultry from premises on to which there has been a movement of live poultry within the previous 28 days is extended to apply also to cases where poultry carcases (except for consumption on the premises) have been moved on within that period.

Poultry removed from an exhibition may not now be sent back to the same exhibition or to another exhibition within 28 days.

Keeping of Movement Records

The Live Poultry (Movement Records) Order, 1954, which also came into operation on February 19th, continues similar provisions contained in the Live Poultry (Restrictions) Order, 1952, requiring poultry dealers and auctioneers to keep records of purchases and sales of poultry, and also in the case of poultry dealers, of day-old chicks.

* * * * *

ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

ANTHRAX:

Aberdeen.—Mains of Whitecairns, Belhelire (Feb. 16).

Argyll.—Barrahormoid Farm, Tayvallich, Lochgilphead (Feb. 16).

Staffs.—Whitehurst Farm, Dilhorne, Stoke-on-Trent (Feb. 19).

Westmorland.—Sizergh Fellside, Sizergh, Kendal (Feb. 18).

FOOT-AND-MOUTH DISEASE:

Beds.—Brick Kiln Farm, Chaul End Road, Caddington, Luton (Feb. 21).

Staffs.—Hollington House, Hollington, Stoke-on-Trent (Feb. 18).

FOWL PEST:

Cambs.—Nere Croft, Malting Lane, Isleham (Feb. 19); Red House, Isleham (Feb. 21).

Carmarthenshire.—Efinnant, Newcastle Emlyn (Feb. 17).

Cornwall.—Bias Field, Diddies Launcells, Stratton, Bude (Feb. 20).

Devon.—The Wilderness, Tiverton (Feb. 17), Lower Hill Town Farm, Peter Tavy, Tavistock; 31, Salisbury Terrace, Stoke, Devonport, Plymouth (Feb. 18); Elmsleigh, Wembworthy, and 5, Eggesford, Chumleigh (Feb. 19).

Dorset.—Arrowsmith Nurseries, Arrowsmith Road, Poole (Feb. 19).

Herts.—Rose Hill Farm, Loudwater, Rickmansworth (Feb. 17).

Kent.—Collinette Farm, Colinette, Brasted, Sevenoaks (Feb. 17); Perrys Farm, Grain (Feb. 20).

Lancs.—Earnsdale; Newarth Lane, Hesketh Bank, Preston; 1 & 2, Higher Simpson, Fold Cottage, Higher Wheelton, Chorley; Oakleigh and High Field, Hall Lane, Longton, Preston; Lower Barn Farm, Ribchester, Preston (Feb. 16); Out Lane Farm, Much Hoole, and Oakleigh, Liverpool Old Road, Hoole, Preston; Longcroft, Gill Lane, Longton, Preston; Mont Pleasant Farm, Simister, Prestwich (Feb. 17); Willmoor House Farm, Moss House Lane, Much Hoole, Preston; Lane House Farm, Much Hoole; 3, Edge End Terrace, Abbey Village, Chorley; 2, Stanworth Terrace, Abbey Village; 1, Banks Terrace, Gill Lane, Longton; Marsh Farm, Marsh Lane, Longton, Preston (Feb. 19); Glenarm, Liverpool Old Road, Much Hoole, and Highmoor Field, Much Hoole, Preston; Edge End Farm, Bolton Road, Withnell, Chorley (Feb. 20); Park Cottage, Liverpool Old Road, Much Hoole; Bryan Road, Colne (Feb. 20); South View, Gill Lane, Longton, Preston (Feb. 21).

Lincs.—7, Cawood Lane, Gosberton, Spalding; Mill House, Covenham, Louth (Feb. 16); Hat and Feathers, Sutton-St. James, Holbeach; Howell Road, Heckington, Sleaford (Feb. 18); Sutton-St. James, Spalding (Feb. 19).

Merioneth.—Celymgoed, No. 2, Cymwyd, Corwen (Feb. 16).

Norfolk.—White House Farm, Tilney St. Lawrence, King's Lynn; Glenhem Orchard, Banningham, Norwich (Feb. 20).

Somerset.—Lanver, Wrasall, Shepton Mallet (Feb. 17); 8, Rickhays, Wincanton (Feb. 19).

Suffolk.—Middlegate Farm, Bacton, Stowmarket (Feb. 17).
Wilts—48, West Parade, Warminster (Feb. 17); Buttermere Manor, Marlborough (Feb. 19).
Worcs.—Holt Castle Farm, Holt Heath (Feb. 18).
Yorks.—12a, Church Street, Addingham, Ilkley (Feb. 18).

SWINE FEVER:

Beds.—Little Bramingham Farm, Streatley, Luton (Feb. 16).
Cambs.—Woodhouse Farm, Chetlisham, Ely (Feb. 16).
Ches.—Lapwing Hall Farm, Withington, Macclesfield; Norris Hill Farm, Heaton, Norris, Stockport (Feb. 19).
Dorset.—Manor Farm, Portesham, Weymouth; France Quarry, Easton, Portland (Feb. 17).
Fife.—Ludin Farm, Crossfield, Dunfermline (Feb. 16).
Hants.—Lode Farm, Kingsley, Bordon (Feb. 17).
Lancs.—Shaw Head Farm, Lord Lane, Failsworth, Manchester (Feb. 17).
Leics.—Highfields Farm, Mill Lane, Blaby, Leicester (Feb. 16); Welby Grange, Welby, Melton Mowbray (Feb. 17).
Lincs.—Scopwick Heath Farm, Scopwick Heath, Scopwick (Feb. 17); Bar Farm, Tattershall Road, Billinghay; The Piggeries, R.A.F. Station, Scampton (Feb. 18); Papermill Farm, Grantham (Feb. 19); Brant Lane, Fulbeck, Grantham (Feb. 20).
Norfolk.—44, Beacham Well, King's Lynn (Feb. 19).
Salop.—The Avenue, Linley, Bishops Castle (Feb. 20).
Staffs.—Home Farm, Stanton Road, Stapenhill, Burton-on-Trent (Feb. 16).
Suffolk.—The Follies, Folly Road, Mildenhall (Feb. 16); Grange Farm, Tannington, Woodbridge (Feb. 20).
Worcs.—87, Wildmoor Lane, Catshill, Bromsgrove (Feb. 18).
Yorks.—Snowthorne Allotments, Snowthorne Lane, Castleford (Feb. 17).

* * * * *

FOOT-AND-MOUTH DISEASE

Foot-and-mouth disease was confirmed on February 18th among cattle and pigs at Hollington, Stoke-on-Trent, Staffs, and an area extending for approximately 15 miles around the infected premises has been declared to be an infected area.

Animals may not be moved into the region without a licence, and the holding of markets within the area is restricted.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement

"CUTTING" IN HORSES

Sir,—How refreshing to see some correspondence dealing with the horse and his shoeing! At the same time it is a painful reminder that members of the foundation stock of our profession, namely, the blacksmiths, are fast disappearing from the present-day scene.

It is presumed that the "brushing" or "cutting" referred to in the letter from Mr. Muir in your issue of February 13th, 1954, occurs during trotting. I should be very interested to learn whether Moorcroft or David Roberge offer any practical advice on how to prevent the over-reach, commonly met with in the race-horse, which may exist anywhere below the knee to the bulbs of the heels.—Yours faithfully, A. E. CAREY FOSTER, Mayfields, Kingswood, Surrey. *February 17th*, 1954.

* * * * *

THE ANIMAL HEALTH TRUST

Sir,—There is only one aspect of the work of the Animal Health Trust of which I have had personal experience, namely, its financial support of post-graduate research training.

The Diploma of Membership of the R.C.V.S., on its own, is not regarded as an adequate foundation for research work. The amount of specialisation necessary in modern research makes it increasingly desirable that a worker should possess more than plain veterinary qualifications. Prior to the advent of the Animal Health Trust there was no organisation with a veterinary bias to which new members of the R.C.V.S. could turn for support for further full-time training to obtain such additional qualifications. Ever since its inception the Trust has appreciated that the provision of veterinarians, with special qualifications in research subjects, to take posts as pathologists, biochemists, physiologists, etc., on equal terms with medical graduates would extend both the field of employment and the sphere of influence of the profession. Already, after only a few years, Trust-aided veterinarians have gone on from their post-graduate training to take their place in such varied activities as neurological and cancer research, in ornithological investigations, in epidemiology and in zoological appointments. To such members the Trust's vigorous and practical encouragement has been invaluable.—Yours faithfully, LAURENCE OGDEN, Llanrhydd Mill, Ruthin, Denbighshire. *February 11th*, 1954.

* * * *

PROPOSED NATIONAL CAMPAIGN AGAINST DISTEMPER

Sir,—The distemper disease group accounts by far for most of the disease, suffering and premature deaths among dogs in this country.

In spite of the fact that sound preventive inoculation methods are available and are applied to a small minority of our dogs, this scourge still decimates the canine world continuously. At present immunisation is too expensive for the majority of dog-owners. Others are deterred by the anti-inoculation propaganda of so-called canine welfare societies who are influenced mainly by the anti-vivisection opinions of their wealthy patrons.

So whilst we have the means to prevent the scourge we are not allowed, in the main, to apply them. Individual dogs are protected, but the disease sweeps on unchecked throughout the country.

American publications have claimed that immunisation has almost wiped out distemper there.

If we could apply immunisation on a mass scale in conjunction with other steps, such as the cleaning-up of large infection sites like dogs' homes and boarding kennels, the eventual elimination of the distemper menace on a national scale could be brought within the bounds of possibility.

Cheap immunisation within the reach of every purse plus a continuous publicity campaign run from a national centre representative of all canine interests, veterinary, animal welfare, animal health trusts, the public, etc., would go a long way towards this ideal.

Could we have opinions on such a project?—Yours faithfully, JOHN M. MITCHELL, 1202, London Road, Norbury, S.W.16. *February 18th*, 1954.

DISEASES OF ANIMALS ACT, 1950—GREAT BRITAIN

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Fowl Pest	Sheep Scab	Swine Fever
16th to 31st January, 1954	9	2	78	—	68
Corresponding period in—1953	58	1	47	—	74
1952	17	6	11	—	25
1951	39	13	127	1	38
1st to 31st January, 1954	22	2	186	—	129
Corresponding period in—1953	126	3	133	—	115
1952	42	17	32	—	67
1951	56	13	258	3	73

Tuberculosis (Attested Herds) Schemes

The number of Attested Herds, *i.e.*, herds officially certified as free from Tuberculosis as at January 31st, 1954, was as follows:—

ENGLAND	WALES	SCOTLAND	TOTAL (GREAT BRITAIN)
54,898	29,321	28,629	112,848